COURSE OVERVIEW DE1091
Stimulation Engineer: Enhanced Recovery & Reservoir Treatment

Course Title
Stimulation Engineer: Enhanced Recovery & Reservoir Treatment

Course Date/Venue
January 26-30, 2026/TBA Meeting Room, Mice H10 Roma Citta, Rome, Italy

Course Reference
DE1091

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of Stimulation Engineer: Enhanced Recovery & Reservoir Treatment. It covers the reservoir stimulation, reservoir characterization for stimulation and enhanced oil recovery (EOR) principles; the matrix acidizing fundamentals and fracture stimulation fundamentals; the wellbore preparation and candidate selection; the rock mechanics and fracture geometry, fracturing fluids and additives; the proppant selection, transport and fracturing equipment and surface setup; and the pressure and rate monitoring, microseismic fracture mapping, surface and downhole diagnostics and data interpretation and adjustments.

Further, the course will also discuss the fracture treatment evaluation and diagnostics; the acidizing techniques and applications; the acid-rock interaction, reaction kinetics, acidizing additives and compatibility and sandstone acidizing design; the acid placement methods and health, safety and environmental concerns; and the chemical EOR methods, thermal EOR techniques and gas injection methods.

During this interactive course, participants will learn the foam stability and injection techniques, in-situ microbial activity and oil recovery; the bacteria selection, nutrient management and compatibility with reservoir conditions; the screening criteria for pilot sites, injection well design and pressure, production, tracer and monitoring; the production logging and surveillance tools; the post-stimulation well testing and analysis and stimulation optimization strategies; and the future trends in reservoir stimulation.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on enhanced recovery and reservoir treatment
- Discuss the reservoir stimulation, reservoir characterization for stimulation and enhanced oil recovery (EOR) principles
- Explain matrix acidizing fundamentals and fracture stimulation fundamentals including wellbore preparation and candidate selection
- Identify rock mechanics and fracture geometry, fracturing fluids and additives, proppant selection and transport and fracturing equipment and surface setup
- Illustrate pressure and rate monitoring, microseismic fracture mapping, surface and downhole diagnostics and data interpretation and adjustments
- Carryout fracture treatment evaluation and diagnostics including acidizing techniques and applications
- Recognize acid-rock interaction, reaction kinetics, acidizing additives and compatibility and sandstone acidizing design
- Apply acid placement methods, health, safety and environmental concerns, chemical EOR methods, thermal EOR techniques and gas injection methods
- Employ foam stability and injection techniques, in-situ microbial activity and oil recovery, bacteria selection and nutrient management and compatibility with reservoir conditions
- Apply screening criteria for pilot sites, injection well design and pressure, production, tracer and monitoring
- Identify production logging and surveillance tools covering PLT, spinner, temperature and noise logs, tracer injection and production profiling, distributed temperature sensing (DTS) and fiber optic monitoring
- Carryout post-stimulation well testing and analysis and stimulation optimization strategies as well as discuss the future trends in reservoir stimulation

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of enhanced recovery and reservoir treatment for stimulation engineers and reservoir engineers, production engineers and well intervention engineers, petroleum engineers and field development engineers, fracturing and acidizing supervisors, operations engineers and technical support staff, geoscientists and petrophysicists working on reservoir performance, asset managers and team leaders overseeing production optimization, well services and completion engineers, service company personnel involved in stimulation services, technical consultants and specialists in enhanced oil recovery (EOR) and other technical staff.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Fee

US$ 8,800 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- The International Accreditors for Continuing Education and Training (IACET - USA)

  Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Dr. John Petrus, PhD, MSc, BSc, is a **Senior Reservoir Engineer & Geologist** with over **30 years** of **onshore & offshore** experience within the **Oil & Gas**, **Refinery** and **Petroleum** industries. His wide experience covers in the areas of **Advanced Well Testing & Interpretation**, **Production Technology** & Engineering, **Well Completions**, **Well Logs**, **Well Stimulation** & **Production Logging**, **Well Completion** Design & Operation, Well Surveillance, **Well Testing**, **Well Stimulation** & Control and **Workover** Planning, **Completions & Workover**, Hole Cleaning & Logging, Servicing and **Work-Over** Operations, **Wellhead** Operations, Maintenance & Testing, Petrophysics/Interpretation of Well Composite, **Reservoir & Tubing** Performance, Practical **Reservoir** Engineering, Clastic **Exploration & Reservoir Sedimentology**, **Carbonate Reservoir Characterization** & Modeling, **Seismic Interpretation**, **Mapping & Reservoir** Modelling, **Reservoir Geology**, Integrating **Geoscience** into **Carbonate Reservoir** Management, **Faulted & Fractured Reservoirs**, **Fractured Hydrocarbon Reservoirs**, Analyses, Characterisation & Modelling of **Fractured Reservoirs & Prospects**, **Fracture Reservoir** Modeling Using **Petrel**, **Reservoir** Engineering Applied Research, **Artificial Lift**, **Artificial Lift System** Selection & Design, Electrical Submersible Pumps (**ESP**), Enhance Oil Recovery (**EOR**), **Hydraulic Fracturing**, **Sand Control** Techniques, **Perforating** Methods & Design, **Perforating** Operations, **Petroleum** Exploration & Production, **Hydrocarbon Exploration** & Production, Exploration & Production, **Play Assessment & Prospect Evaluation**, **Formation** Evaluation, **Petroleum Engineering** Practices, **Petroleum** Hydrogeology & Hydrodynamics, **Project** Uncertainty, Decision Analysis & Risk Management, **Decision Analysis & Uncertainty** Management, **Exploration & Development Geology**, **Sedimentology & Sequence Stratigraphy**, **Structural Interpretation** in Exploration & Development, **Petrel Geology**, **Geomodeling**, **Structural Geology**, **Applied Structural Geology** in Hydrocarbon Exploration, **Petrophysics**, **Geology** of the Oil & Gas Field, **Geophysics**, **Geothermal**, **Geochemical & Geo-Engineering** and Drilling Applied Research, Field Geological Outcrop Mapping & Digital Cartography, **Geological** Modelling, **Geoscience** Management in E&P, Geoscience Modelling, Geological Mapping, **Structural Geology-Tectonics**, **Structural** Analysis, **Tectonic Modelling** and Numerical Simulation of **Fractured Prospects & Reservoirs**, **Fracture Network** Analysis & Modelling, **Prospect** Generation, Global Networking, Research and Technology Development Management for **Fault & Fracture Analyses** & Modelling, **Fracture** Modelling, **Dynamic** Modelling, **Field Development** Planning, **Water Injection** Planning, Stereophotogrammetry, Fault Mapping, GPS Survey, 2D & 3D **Seismic Acquisition** & Processing, **3D Seismic** Surveys & Mapping, 3D GIS, GMAP, **Sandbox** Modelling, Sedimentological Logging, GR Logging, Surface & Subsurface 3D Modelling, Best Practices Management System (**BPMS**), Subsurface Work for Energy Projects, Digitalization Projects, **Structural Model** using **Petrel**, G&G Seismic & **Well Data** Modelling, **GIS System** Management, **Database** Management, Strategic Planning, Best Practices and Workflow, **Quality** Management, **Project** Management and **Risk Assessment** & Uncertainty Evaluation. Further, he is also well-versed in **seismic interpretation**, **mapping** & **reservoir modelling tools** like **Petrel** software, **LandMark**, **Seisworks**, **Geoframe**, **Zmap** and has extensive knowledge in MSDos, Unix, **AutoCAD**, MAP, Overlay, Quicksurf, 3DStudio, **Esri ArcGIS**, Visual Lisp, Fortran-77 and Clipper. Moreover, he is a world **expert** in **analysis** and **modelling** of **fractured prospects** and **reservoirs** and a **specialist** and **developer** of **fracture modelling software tools** such as FPDM, FMX and DMX Protocols.

During his career life, Dr. Petrus held significant positions and dedication as the **Executive Director**, **Senior Geoscience Advisor**, **Exploration Manager**, **Project Manager**, **Manager**, **Chief Geologist**, **Chief** of **Exploration**, **Chief** of **Geoscience**, **Senior Geosciences Engineer**, **Senior Explorationist**, **Senior Geologist**, **Geologist**, **Senior Geoscientist**, **Geomodeller**, **Geoscientist**, **CPR Editor**, **Resources Auditor**, **Project Leader**, **Technical Leader**, **Team Leader**, **Scientific Researcher** and **Senior Instructor/Trainer** from various international companies and universities such as the Dragon Oil Holding Plc., ENOC, MENA, ENI Group of Companies, Ocre Geoscience Services (OGS), Burren RPL, Ministry of Oil-Iraq, Eni Corporate University, Standford University, European Universities, European Research Institutes, NorskHydro Oil Company, Oil E&P Companies, just to name a few.

Dr. Petrus has a **PhD** in **Geology** and **Tectonophysics** and **Master's** and **Bachelor's** degree in **Earth Sciences** from the **Utrecht University**, **The Netherlands**. Further, he is a **Certified Instructor/Trainer**, a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management** (**ILM**), a Secretary and Treasurer of Board of Directors of Multicultural Centre, Association Steunfonds SSH/SSR and Founding Member of Sfera Association. He has further published several scientific publications, journals, research papers and books and delivered numerous trainings, workshops, courses, seminars and conferences internationally.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: ***Monday, 26th of January 2026***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Reservoir Stimulation*** *Purpose & Benefits of Stimulation • Types: Matrix versus Fracturing Stimulation • Historical Development & Industry Trends • Stimulation's Role in Well Productivity*
0930 – 0945	*Break*
0945 – 1030	***Reservoir Characterization for Stimulation*** *Porosity & Permeability Profiles • Lithology & Rock Mechanics • Fluid Properties & Saturation • Well Logs & Core Data Interpretation*
1030 – 1130	***Enhanced Oil Recovery (EOR) Principles*** *Primary, Secondary & Tertiary Recovery • Mechanisms of EOR: Miscible, Chemical, Thermal • Selection Criteria for EOR Methods • Reservoir Screening for EOR*
1130 – 1215	***Matrix Acidizing Fundamentals*** *Acid Types: HCl HF Organic Blends • Reaction Mechanisms & Kinetics • Formation Damage Removal • Treatment Design & Execution*
1215 – 1230	*Break*
1230 – 1330	***Fracture Stimulation Fundamentals*** *Hydraulic Fracturing Basics • Fracture Propagation Models • Proppant Selection & Placement • Fracture Diagnostics Techniques*
1330 – 1420	***Wellbore Preparation & Candidate Selection*** *Reservoir & Well Candidate Screening • Mechanical Integrity Checks • Cleanout & Wellbore Conditioning • Pre-Stimulation Testing & Evaluation*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2: ***Tuesday, 27th of January 2026***

0730 – 0830	***Rock Mechanics & Fracture Geometry*** *Stress Profile & Fracture Gradient • Young's Modulus & Poisson's Ratio • Fracture Height Containment • Natural Fractures & Stress Anisotropy*
0830 – 0930	***Fracturing Fluids & Additives*** *Fluid Types: Gelled, Slickwater, Hybrid • Additives: Crosslinkers, Breakers, Surfactants • Fluid Rheology & Temperature Stability • Fluid Compatibility with Formation*
0930 – 0945	*Break*
0945 – 1100	***Proppant Selection & Transport*** *Types: Sand, Ceramic, Resin-Coated • Strength & Conductivity • Settling Velocity & Transport Mechanisms • Proppant Placement Strategies*

1100 – 1215	***Fracturing Equipment & Surface Setup*** *Pumps & Blending Units • Sand Handling Systems • Frac Tree & Manifold Setups • Data Acquisition & Monitoring Systems*
1215 – 1230	*Break*
1230 – 1330	***Real-Time Monitoring & Data Acquisition*** *Pressure & Rate Monitoring • Microseismic Fracture Mapping • Surface & Downhole Diagnostics • Data Interpretation & Adjustments*
1330 – 1420	***Fracture Treatment Evaluation & Diagnostics*** *Step-Rate Tests & Mini-Fracs • Net Pressure Analysis • Fracture Length & Width Estimation • Post-Job Evaluation Techniques*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Two*

Day 3: Wednesday, 28th of January 2026

0730 – 0830	***Acidizing Techniques & Applications*** *Matrix Acidizing versus Acid Fracturing • Formation Type: Carbonate versus Sandstone • Emulsified & Foamed Acid Systems• Acid Diversion & Zonal Coverage*
0830 – 0930	***Acid-Rock Interaction & Reaction Kinetics*** *Reaction Products & Precipitation Risks • Wormholing in Carbonate Formations • Spent Acid Cleanup Requirements • Kinetic versus Mass Transport Limitations*
0930 – 0945	*Break*
0945 – 1100	***Acidizing Additives & Compatibility*** *Corrosion Inhibitors & Iron Control • Mutual Solvents & Surfactants • Scale Inhibitors & Clay Stabilizers • Additive Compatibility Testing*
1100 – 1215	***Sandstone Acidizing Design*** *Mud Acid System Components • Preflush, Main Acid & Overflush Stages • Clay Stabilization Techniques • Post-Treatment Flowback Management*
1215 – 1230	*Break*
1230 – 1330	***Acid Placement Methods*** *Bullheading versus Coiled Tubing • Diversion: Ball Sealers, Foam, Chemical • Zonal Isolation Techniques • Acid Volume Calculation & Placement*
1330 – 1420	***Health Safety & Environmental Concerns*** *Chemical Handling Protocols • H2S & Acid Vapor Hazards • Spill Prevention & Containment • Waste Fluid Handling & Disposal*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Three*

Day 4: Thursday, 29th of January 2026

0730 – 0830	***Chemical EOR Methods*** *Polymer Flooding • Surfactant-Polymer Systems • Alkaline-Surfactant-Polymer (ASP) • Chemical Retention & Adsorption Issues*
0830 – 0930	***Thermal EOR Techniques*** *Steam Injection: Cyclic, Continuous, SAGD • In-Situ Combustion • Heat Losses & Operational Limitations • Thermal Simulation Models*

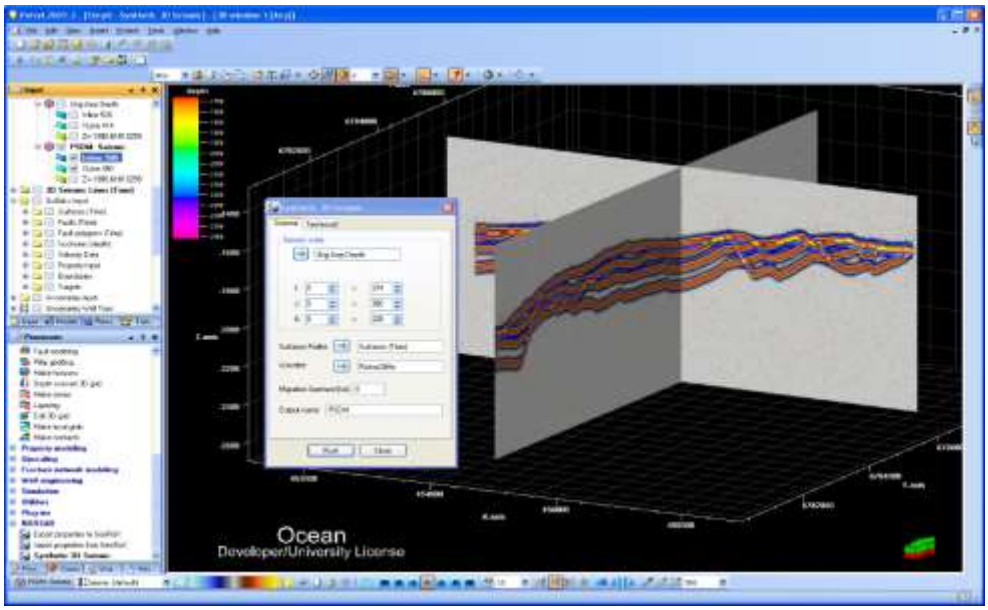
0930 – 0945	*Break*
0945 – 1100	***Gas Injection Methods*** *CO_2 Injection: Miscible & Immiscible • Nitrogen & Flue Gas Injection • Minimum Miscibility Pressure (MMP) • Gas Mobility Control Strategies*
1100 – 1215	***Foam & Microbial EOR*** *Foam Stability & Injection Techniques • In-Situ Microbial Activity & Oil Recovery • Bacteria Selection & Nutrient Management • Compatibility with Reservoir Conditions*
1215 – 1230	*Break*
1230 – 1330	***EOR Pilot Design & Monitoring*** *Screening Criteria for Pilot Sites • Injection Well Design • Monitoring: Pressure, Production, Tracer • Pilot to Full-Field Scale-Up*
1330 – 1420	***Integration of EOR with Stimulation Programs*** *Post-Stimulation EOR Synergy • Reservoir Compatibility Assessment • Production Data Analysis & Optimization • Long-Term Recovery Performance Tracking*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Four*

Day 5: ***Friday, 30th of January 2026***

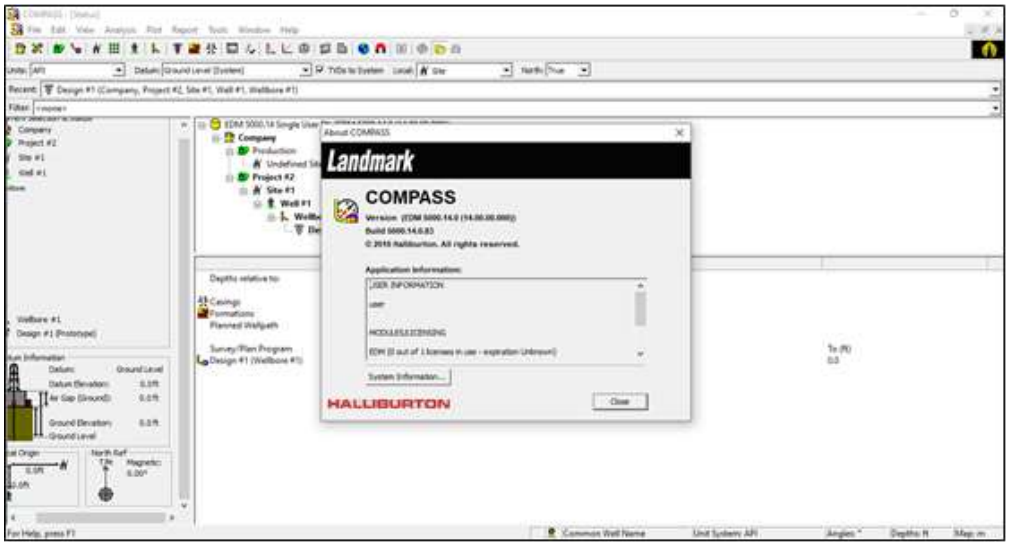
0730 – 0830	***Production Logging & Surveillance Tools*** *PLT, Spinner, Temperature & Noise Logs • Tracer Injection & Production Profiling • Distributed Temperature Sensing (DTS) • Fiber Optic Monitoring*
0830 – 0930	***Post-Stimulation Well Testing & Analysis*** *Pressure Transient Analysis (PTA) • Diagnostic Fracture Injection Test (DFIT) • Decline Curve Analysis (DCA) • Flow Assurance & Productivity Index*
0930 – 0945	*Break*
0945 – 1100	***Stimulation Optimization Strategies*** *Re-Fracturing Candidate Identification • Stimulation Timing & Sequence • Multistage Fracture Optimization • Cost versus Recovery Trade-Offs*
1100 – 1230	***Stimulation Design Software & Modeling*** *FracCADE StimPlan GOHFER Basics • 3D Fracture Modeling • Acidizing Simulation Tools • Data Input Calibration & Validation*
1230 – 1245	*Break*
1245 – 1300	***Case Studies: Global Reservoir Treatment Practices*** *Tight Gas Fracturing Success Story • Matrix Acidizing in Carbonate Reservoirs • Chemical EOR Integration Example• Horizontal Well Multistage Fracturing*
1300 - 1345	***Future Trends in Reservoir Stimulation*** *Machine Learning in Stimulation Design • Smart Completions & Digital Fracturing • Environmentally Friendly Stimulation Fluids • Real-Time Adaptive Stimulation Systems*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulator (Hands-on Practical Sessions)

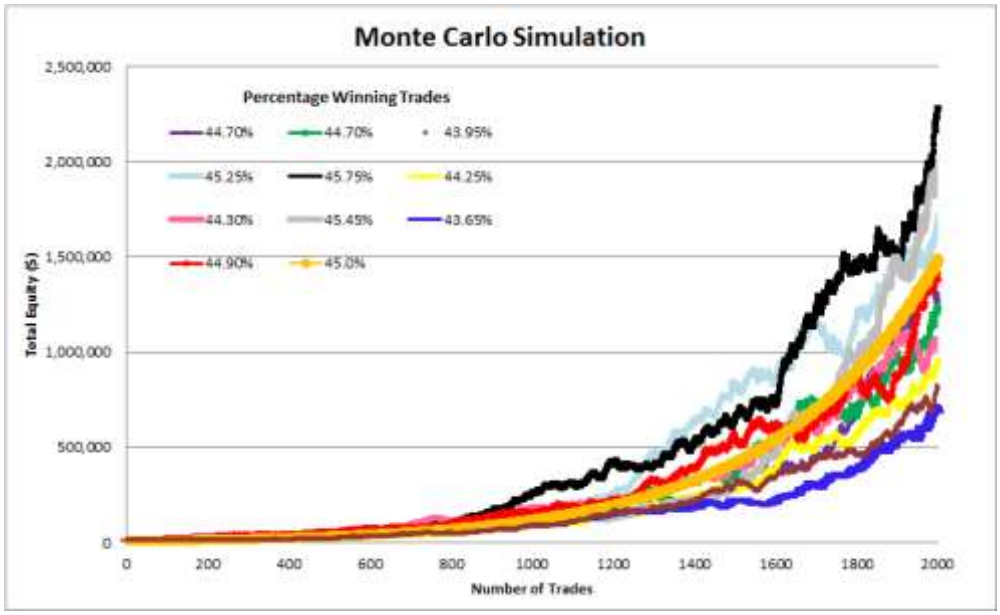
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the "Petrel Software", "COMPASS", "Monte Carlo", "KAPPA", "Interactive Petrophysics (IP)", "ECRIN", "PIPESIM" and "PROSPER" software's.



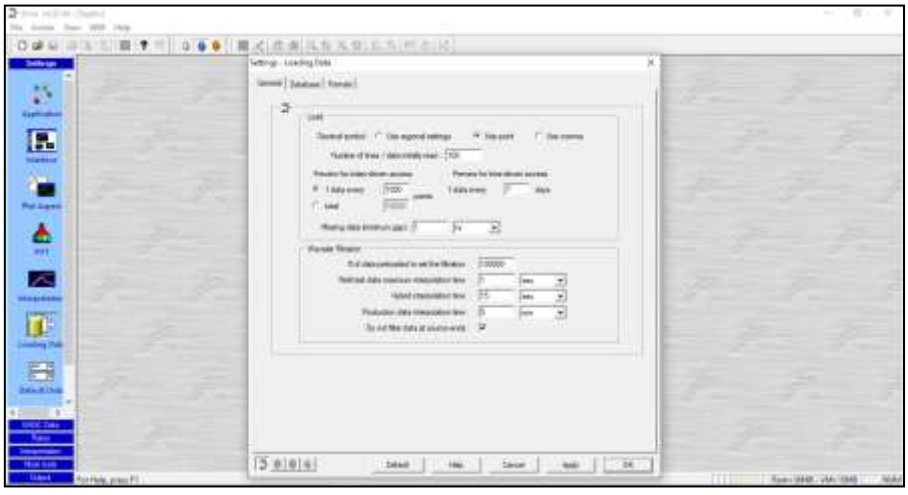
Petrel Software



COMPASS



Monte Carlo Simulation



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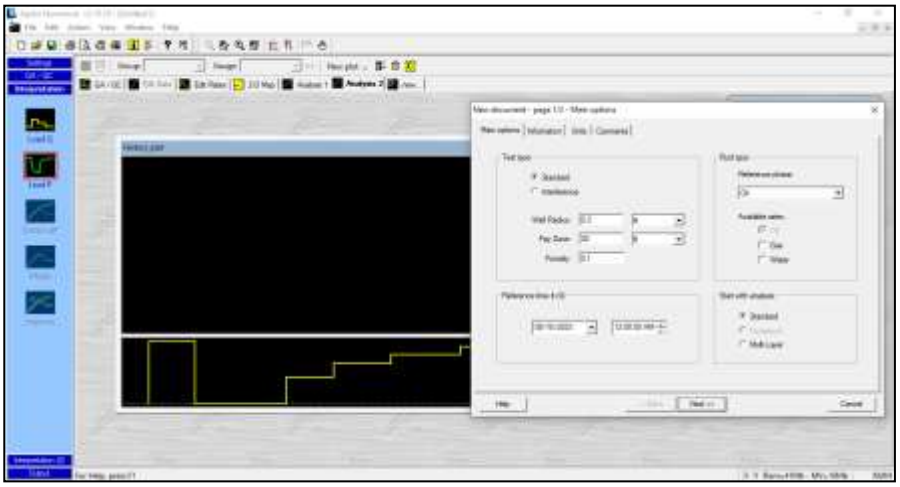

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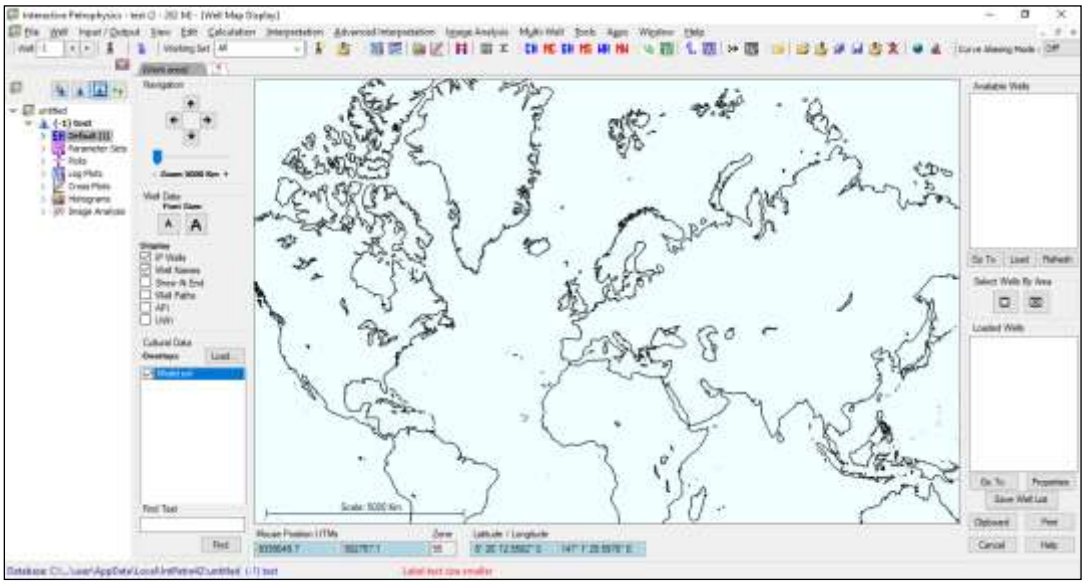
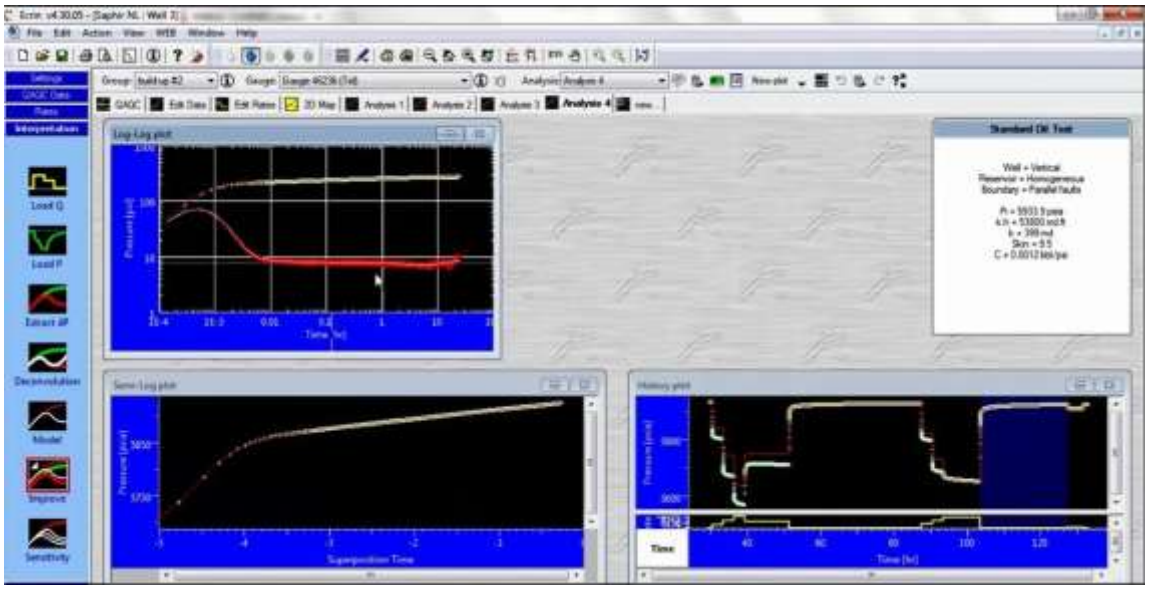
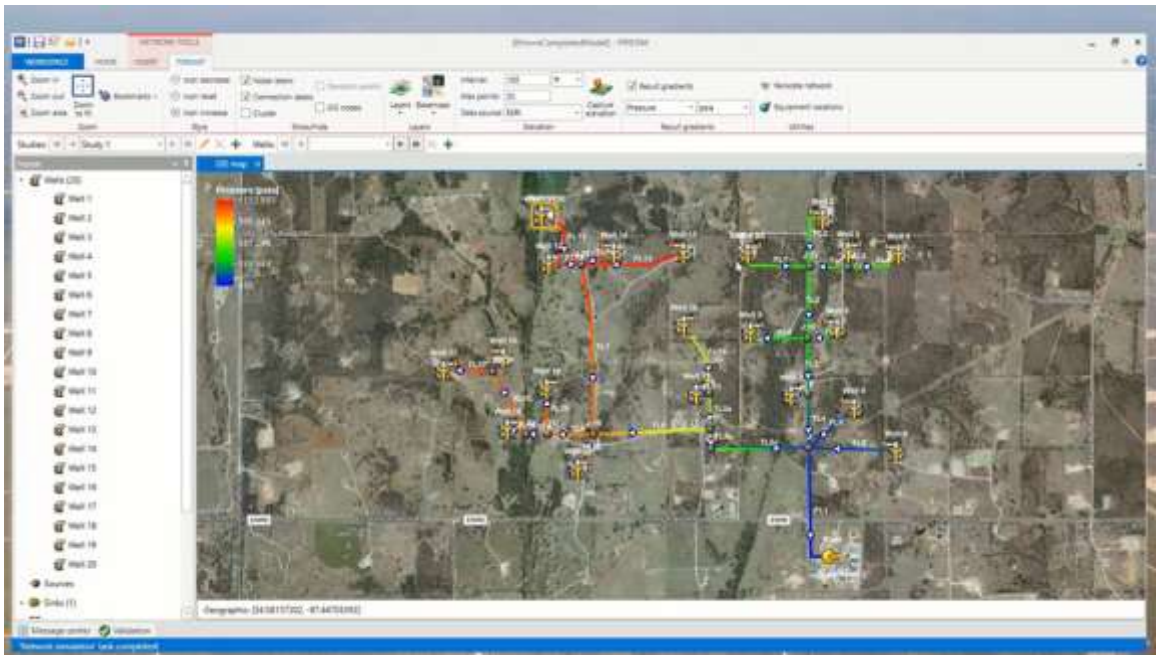


Interactive Petrophysics (IP) Software



ECRIN Software



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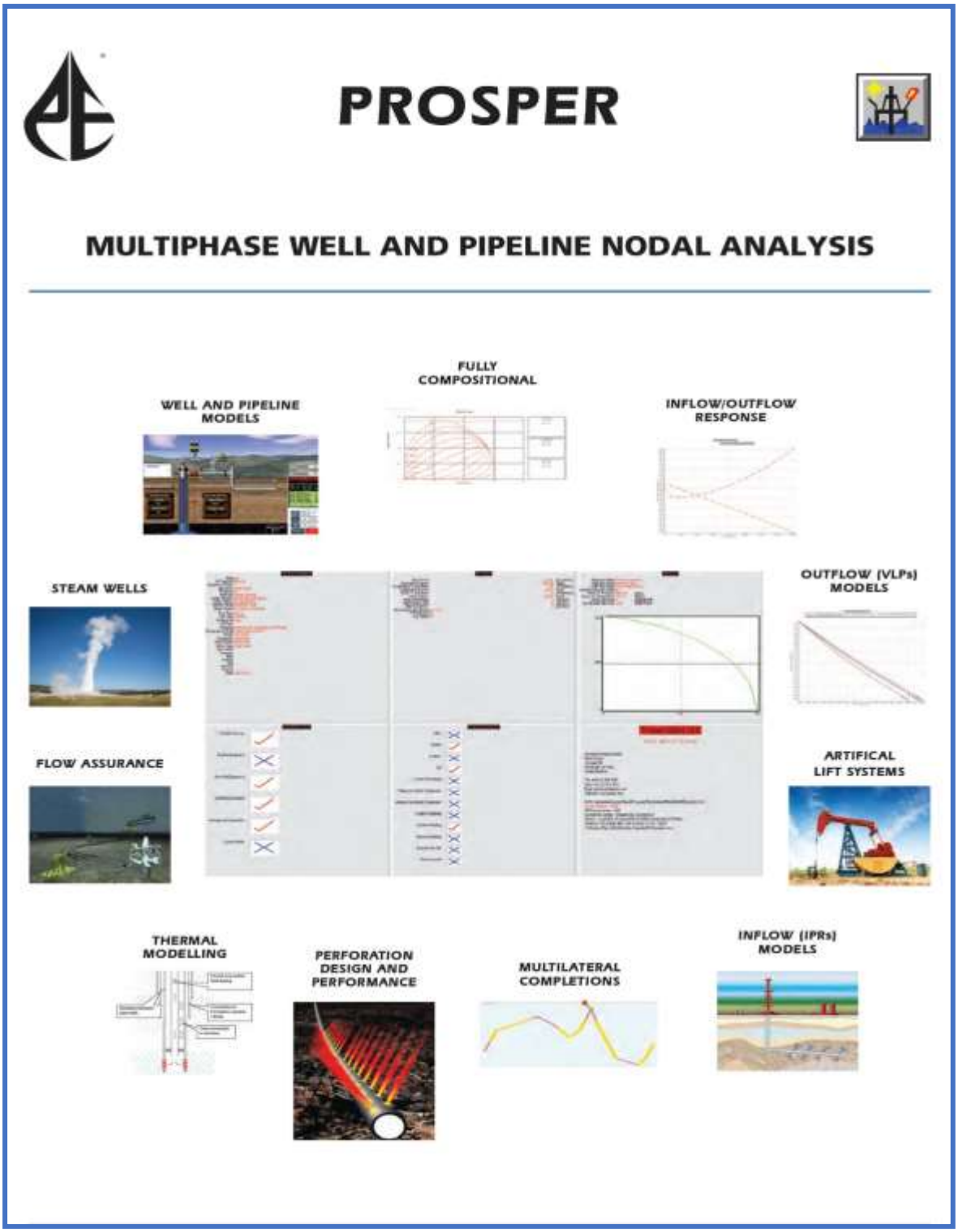

Course Coordinator
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